



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/656,440

09/05/2003

Veshaal Singh

50277-2209

8474

29989

7590

04/04/2008

HICKMAN PALERMO TRUONG & BECKER, LLP  
2055 GATEWAY PLACE  
SUITE 550  
SAN JOSE, CA 95110

EXAMINER

PATEL, MANGLESH M

ART UNIT

PAPER NUMBER

2178

MAIL DATE

DELIVERY MODE

04/04/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/656,440	<b>Applicant(s)</b> SINGH, VESHAAL	
	<b>Examiner</b> MANGLESH M. PATEL	<b>Art Unit</b> 2178	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-12,17,20-28 and 33-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-12,17,20-28 and 33-40 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. This **Non-Final** action is responsive to the RCE filed on 12/21/2007.
2. Claims 1, 4-12, 17, 20-28 and 33-40 are pending. Claims 2-3, 13-16, 18-19, 29-32 are canceled. Claims 39 and 40 are new. Claim 1 is the independent claim.

**Withdrawn Rejections**

3. The 35 U.S.C. 103(a) rejections of claims 1, 4-12, 17, 20-28 and 33-38 with cited references of Vedula (U.S. 6,823,495) in view of Chau (U.S. 6,643,633) have been withdrawn in light of the amendment.

**Claim Objections**

4. Claims 17, 20-28, 36-38 and 40 is objected to because of the following informalities: The claims describe a computer-readable storage medium that performs methods of another claim. However it is unclear whether the claims are dependent or Independent claims, furthermore it is unclear as to the dependency of the claims. It is advised that the claims be rewritten with the actual steps of the method furthermore including its dependencies for clarity.

**Claim Rejections - 35 USC § 103**

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 4-12, 17, 20-28 and 33-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vedula (U.S. 6,823,495, filed Sep 14, 2000) in view of Warshavsky (U.S. 6,732,095, filed Apr. 13, 2001)

**Regarding Independent claims 1,** A computer-implemented method for generating and using a mapping scheme, the method comprising: Receiving commands from a user, wherein said commands establish a mapping between one or more attributes of an XML document and one or more attributes of a relational database; Based on said commands, automatically generating a mapping scheme that represents said mapping, wherein said mapping scheme includes at least one of: multiple attributes of said XML document mapped to a single attribute of said relational database; and multiple attributes of said relational database mapped to a single attribute of said XML document; and using said mapping scheme to perform a single transformation that moves said XML document directly into said relational

database without materializing the entire XML document separate from said XML document and said relational database during said transformation; wherein the one or more attributes of said relational database correspond to one or more columns in one or more tables in said relational database.

Vedula teaches mapping between attributes of a source and target based on user commands (see abstract). Furthermore he shows that multiple attributes of a source or target are mapped between each other (see fig 1 & 7a & 12a & column 12, lines 25-35). Vedula shows that records which are part of a hierarchical tree are mapped between source and target documents (column 9, lines 10-25 & fig 1). Each record represents a mapping between a set such as record Field 1 from source to record field 1 to target, which is a child node of the parent node BLANK specification (see fig 1 and column 10, lines 1-16). Vedula further suggests that his invention with mapping between source and target objects may be between documents and databases, he doesn't explicitly teach that such mapping includes a relational database which transforms the data sets without materializing the entire set of data. Warshavsky teaches mapping between XML and relational data using a set of XML mapping definitions (abstract, fig 3 & column 2, lines 10-20). Warshavsky describes that mappings are done between the XML document which include specific elements mapped to a specific table in the relational database (column 3, lines 40-67). Thus the mappings transforms the data sets without materializing the entire set of data, because specific tables are mapped to XML data elements. The mapping are described using metadata within the XML mapping definitions thereby preventing the entire set of data from materializing (see column 4, lines 1-56 & column 5, lines 10-55). Since Vedula already supports the use of schemas for performing graphical mappings, it would have been obvious for one of ordinary skill in the art to have combined the XML mapping definitions of Warshavsky with Vedula. The motivation for doing so would have been to allow support for graphical mapping of relational data saving time. Saving time because the inexperienced user would not have to understand any schema related syntax to perform the mapping.

**Regarding Dependent claims 4 and 20,** Vedula discloses *wherein said mapping scheme further includes instructions on how to collapse a number of attributes of said XML document into a smaller number of attributes of said relational database* (see figure 4b numeral 46 & column 10, lines 54-67, thus providing collapsing of attributes, including the explanation provided in the Independent claim).

**Regarding Dependent claim 5 and 21,** Vedula discloses *wherein said mapping scheme further includes instructions on how to expand a number of attributes of said XML document to a greater number of attributes of said relational*

database (see figure 5 numeral 46, thus providing expanding of attributes, including the explanation provided in the Independent claim).

**Regarding Dependent claims 6 and 22,** Vedula discloses wherein:

- *The step of receiving commands from a user includes receiving user input that specifies a condition, and an action associated with the condition* (column 9, lines 25-35, wherein schema is the specified condition or rule used prior to the transformation process); *and*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from said XML document to a format associated with said relational database* (column 9, lines 40-55, wherein converting data is the transformation done based on the mapping);
- *During performance of said operation, performing the steps of determining whether the condition is satisfied* (column 9, lines 25-35, wherein the condition is specified in the schema and evaluated by the XSL engine shown in fig 2 prior to the transformation); *and*
- *If the condition is satisfied, then performing said action* (column 9, lines 25-35, wherein the condition is specified in the schema and evaluated by the XSL engine shown in fig 2 prior to the transformation, wherein the transformation is the action performed based on the schema being satisfied, including the explanation provided in the Independent claim).

**Regarding Dependent claims 7 and 23,** Vedula discloses wherein:

- *The step of receiving commands from a user includes receiving user input that specifies a specific set of instructions* (column 9, lines 25-35); *and*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from said XML document to a format associated with said relational database* (column 9, lines 40-55); *and*
- *During performance of said operation, executing the specific set of instructions to affect said operation* (column 9, lines 40-55, including the explanation provided in the Independent claim).

**Regarding Dependent claims 8 and 24,** Vedula discloses wherein:

- *The step of receiving commands from a user includes receiving user input that declares a variable to which values can be assigned (column 9, lines 25-35 & column 12, lines 50-69);*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from said XML document to a format associated with said relational database (column 9, lines 25-35 & column 12, lines 50-69); and*
- *During performance of said operation, using said variable (column 9, lines 25-35 & column 12, lines 50-69, including the explanation provided in the Independent claim).*

**Regarding Dependent claims 9 and 25,** Vedula discloses wherein:

- *The step of receiving commands from a user includes receiving user input that specifies a precompiled routine (column 12, lines 50-69 & column 13, lines 1-25); and*
- *The method further comprises the steps of performing an operation that includes converting data, based on said mapping scheme, from said XML document to a format associated with said relational database (column 12, lines 50-69 & column 13, lines 1-25); and*
- *During performance of said operation, calling said precompiled routine to affect said operation (column 12, lines 50-69 & column 13, lines 1-25, including the explanation provided in the Independent claim).*

**Regarding Dependent claims 10 and 26,** Vedula discloses:

- *Reading source data definition that includes information about said one or more attributes of said XML document (see abstract & fig 1 & 7a & 12a & column 12, lines 25-35);*
- *Reading target data definition that includes information about said one or more attributes of said relational database (see abstract & fig 1 & 7a & 12a & column 12, lines 25-35);*
- *Based on said source data definition and said target data definition, presenting to said user an interface that identifies said one or more attributes of said XML document and said one or more attributes of said relational database (see abstract & fig 1 & 7a & 12a & column 12, lines 25-35);*
- *Wherein said step of receiving commands from said user interface is performed by receiving said commands through said interface (see abstract & fig 1 & 7a & 12a & column 12, lines 25-35, including the explanation provided in the Independent claim).*

**Regarding Dependent claims 11 and 27,** Vedula discloses *wherein said mapping scheme includes instructions on how to collapse a number of hierarchical levels of said XML document into a smaller number of hierarchical levels of said relational database* (see figure 4b numeral 46 & column 10, lines 54-67, including the explanation provided in the Independent claim).

**Regarding Dependent claims 12 and 28,** Vedula discloses *wherein said mapping scheme includes instructions on how to expand a number of hierarchical levels of said XML document to a greater number of hierarchical levels of said relational database* (see figure 5 numeral 46, including the explanation provided in the Independent claim).

**Regarding Dependent claim 17,** the claim describes a computer readable storage medium performing the method of claim 1 and is therefore rejected under the same rationale.

**Regarding Dependent claims 33 and 36,** Vedula discloses a plurality of said XML document are related to each other according to a first hierarchy that includes multiple hierarchical levels; a plurality of attributes of said relational database are related to each other according to a second hierarchy that includes multiple hierarchical levels; and said commands establish, in said mapping, that a particular hierarchical level of said XML document is mapped to a particular hierarchical level of said relational database, wherein said particular hierarchical level of said XML document is at a different depth, within said first hierarchy, than the depth of said particular hierarchical level of said relational database within said second hierarchy (Vedula teaches in figs 1 & 3c, column 9, lines 1-55, wherein source objects shown as attributes on figure 3c include a hierarchy that includes multiple levels, for example 18a and 18b of fig 1. Wherein the target also includes a multiple hierarchy of levels. Wherein the mappings include different depths., including the explanation provided in the Independent claim).

**Regarding Dependent claim 34 and 37,** Vedula discloses wherein said single transformation is performed by executing commands defined in a programming language that supports operations to fetch said XML document directly and store said XML document directly into said relational database (see abstract, see fig 1 & 7a & 12a & column 12, lines 25-35, including the explanation provided in the Independent claim).

**Regarding Dependent claim 35 and 38,** Vedula discloses wherein: said mapping scheme includes instructions which define that operations included in said single transformation are grouped to represent a transaction; and using said mapping scheme to perform said single transformation further comprises performing said operations in said transaction (see abstract, see fig 1 & 7a & 12a & column 12, lines 25-35, including the explanation provided in the Independent claim).

**Regarding Dependent claims 39 and 40,** Vedula discloses wherein using said mapping scheme to perform said single transformation comprises: processing a first XML element of said XML document to move said first XML element from said XML document to said relational database; and after processing of said first XML element is completed, processing a second XML element of said XML document to move said second XML element from said XML document to said relational database, wherein said second XML element is different from said first XML element (see abstract, see fig 1 & 7a & 12a & column 12, lines 25-35, including the explanation provided in the Independent claim).

**It is noted that any citation [[s]] to specific, pages, columns, lines, or figures in the prior art references and any interpretation of the references should not be considered to be limiting in any way. A reference is relevant for all it contains and may be relied upon for all that it would have reasonably suggested to one having ordinary skill in the art. [[See, MPEP 2123]]**

#### **Response to Arguments**

7. Applicant's arguments filed 12/21/2007 have been fully considered but are moot in view of the new grounds of rejection.

#### **Conclusion**



**References Cited**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- Krishnaprasad et al. (U.S. 6,871,204) discloses "Apparatus And Method For Mapping Relational Data And Metadata To XML"
  - Krishnaprasad et al. (U.S. 7,024,425) discloses "Method And Apparatus For Flexible Storage And Uniform Manipulation Of XML Data In A Relational Database System"
  - Chau et al. (U.S. 7,174,327) discloses "Generating One Or More XML Documents From A Relational Database Using XPath Data Model"
  - Zhou et al. (U.S. 7,219,102) discloses "Method, Computer Program Product, And System Converting Relational Data Into Hierarchal Data Structure Based Upon Tagging Trees"
  - Chaudhuri et al. (U.S. 7,228,312) discloses "Transformation Tool For Mapping XML To Relational Database"
  - Krishnaprasad et al. (U.S. 7,260,585) discloses "Apparatus And Method For Mapping Relational Data And Metadata To XML"
  - Krishnaprasad et al. (U.S. Pub 2002/0078068) discloses "Method And Apparatus For Flexible Storage And Uniform Manipulation Of XML Data In A Relational Database System"
  - Denise Draper, Mapping between XML and Relational Data, Feb 6, 2004, informIT, pgs 1-25
  - Eclipse, AMW Use Case- Data mapping between relational database and XML, 2008, The Eclipse Foundation, pgs 1-5

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manglesh M. Patel whose telephone number is (571) 272-5937. The examiner can normally be reached on M, W 6 am-3 pm T, TH 6 am-2pm, Fr 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen S. Hong can be reached on (571) 272-4124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manglesh M. Patel  
Patent Examiner  
March 27, 2008

/Manglesh M Patel/  
Manglesh Patel  
Examiner, Art Unit 2178

/CESAR B PAULA/

Primary Examiner, Art Unit 2178